



**SIR M. VISVESVARAYA INSTITUTE OF TECHNOLOGY**

**INDEX SHEET**

**TEAM INFERNO**

**CRITERIA 7**

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SIR M VISVESVARAYA INSTITUTE OF TECHNOLOGY, BENGALURU

Department of Mechanical Engineering



SUBMITTED TO THE PRINCIPAL

Through Proper Channel



June 11, 2020

SUB: Virtual Off Track Safety Award Winner- Team Inferno


We are glad to inform that Team Inferno was declared WINNER of Shell Eco Marathon Asia 2020 Virtual Off Track Safety Award held on June 03, 2020 in Kaula lumpur, Malayasia. Results were declared Online by Shell Company. Due to COVID19 Pandemic Worldwide, this year On track events were cancelled.

A Report of Team Inferno's participation in Shell Eco Marathon Asia 2020 and Media Coverage for Team Inferno for Shell Eco Marathon India 2019 has been attached for your kind reference.

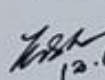
We thank our Management- Sri KET, Principal Sir MVIT and HOD, Department of Mechanical Engineering for their continuous encouragement and support during various stages of the competition.

  
Khalique Ejaz Ahmed  
Faculty in Charge-Team Inferno

  
11.6.2020  
PROFESSOR & HEAD  
Department of Mechanical Engineering  
Sir M. Visvesvaraya Institute of Technolgy  
Bangaluru-562 157

HOD ME  
Indicate if any  
financial support was  
given by Management  


Respected Sir  
A request for financial support was submitted  
from the department on 21.10.2019 (3361, 6.11.2019).  
recommended by RC abro. But the team didn't  
receive any financial grant.  
This is for your kind information.

  
12.6.2020  
HOD, Mech



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## **TEAM INFERNO:**

### **About team INFERNO**

Team Inferno started in 2011, by a group of Mechanical Engineering students from Sir M. Visvesvaraya Institute of Technology have been consistently building Super mileage cars and representing the Institution in Shell Eco Marathon, Asia regularly since 2012. Following are Super mileage cars built for participation in Shell Eco Marathon International and National Competitions:

#### **Activities conducted:**

<b>Sl.No</b>	<b>Year</b>	<b>Vehicle Name</b>	<b>Place Held</b>
1.	2012	Drona	Kuala Lumpur, Malaysia
2.	2014	Vidur	Manila, Philippines
3.	2015	Eklavya	Manila, Philippines
4.	2016	Yaksha	Manila, Philippines
5.	2017	Dhruva	Singapore
6.	2018	Vayu	Chennai, India
7.	2019	Vayu2.0	Bengaluru, India
8.	2020	Vayu2.0	Kuala Lumpur, Malaysia

**Virtual OFF-Track Awards was organized by Shell Company this year due to COVID19 Pandemic and the Competition was cancelled for ON Track Events. Team Inferno participated in 3 Events and was Declared WINNER in Virtual Safety Category on June 03, 2020. This year the Competition was quite tough with more than 500 teams representing different Asian Countries vying for prize money.**

**The Team will get prize money of 3000 Dollars and is expected to receive Travelling Allowance for having qualified for participation after the tough three phases. This amount will be credited to the Principal's account, Sir MVIT in two months.**

Team Inferno, initially a team that built cars running on gasoline, stepped into the world of electric cars in 2018. Team Inferno built a new innovative Eco-friendly electric car VAYU2.0 as the world is heading towards Electric based vehicles. The Prototype Car has an extremely unique design that set it apart from the rest of the cars.



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**EVIDENCE OF SUCCESS: -**



**Year 2015:**

Team INFERNO's EKLAVYA successfully participated in Gasoline Prototype Category at Shell Eco Marathon, Asia held in Manila, Philippines during February, 2015. Team Manager: Kushal Koudinya , Team Advisor-K.Ejaz Ahmed

**Year 2016:-**



Team INFERNO's YAKSHA successfully participated in Gasoline Prototype Category at Shell Eco Marathon, Asia held in Manila, Philippines to secure 9th place during March 02-06, 2016. Team Manager: Akshith , Team Advisor- K.Ejaz Ahmed

*Khalique Ejaz Ahmed*  
KHALIQUE EJAZ AHMED  
TEAM INFERNO - Faculty in Charge



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**Year 2017:**



Team INFERNO's DHRUVA successfully participated in Gasoline Prototype Category at Shell Eco Marathon, Asia held in Singapore during March 15-19, 2017. Team Manager: Sumeet Patil, Team Advisor-K.Ejaz Ahmed.

**Year 2018**

Team INFERNO's VAYU secured Third Place in Battery-Electric Prototype Category at Shell Eco Marathon, Chennai



*Khalique Ejaz Ahmed*  
KHALIQUE EJAZ AHMED  
TEAM INFERNO - Faculty in Charge



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Team Manager: Satvik , Team Advisor-K.Ejaz Ahmed.



*Khalique Ejaz Ahmed*  
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Team INFERNO's VAYU-2 successfully participated in Battery-Electric Prototype Category at Shell Eco Marathon, Bangalore in Nov 22-27, 2019. Team Manager: Sree Tejas , Team Advisor-K.Ejaz Ahmed.

*Khalique Ejaz Ahmed*  
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Year 2019



Shell Eco-Marathon India 2019 held at Bengaluru between November 19-24, 2019 for the second time in India. About 39 teams from all over India participated in the event but only 10 teams successfully cleared the stringent Technical and Safety Inspections and qualified for track race. Glad to inform that Team Inferno was one among 10 teams to qualify for track. The team finished off on a high note at the event, along with Institutes such as IITs, BITS Pilani, DTU, VIT, SRMetc, to qualify for Asia Competition to be held in 2020. The team also got a special mention at the closing ceremony for conducting Awareness Drives and Safety campaigns at schools and public locations.

**Other Achievements of Team Inferno in Recent Past:**

In the Daily BANGALORE MIRROR edition of December 09, 2019 Team Inferno's article was published as "Electrifying the Future" stating the unique features of the car.

In INDIA TODAY's edition of October 10, 2018 Sir MVIT was rated as one of the top 5 Institutions in INDIA which participate in International Car Events for Students.

The Team participated in National Design Competition held in Ranchi (Uttarakhand) on November 04, 2018 organised by National Design and Research Forum to win Silver

*Khalique Ejaz Ahmed*  
KHALIQUE EJAZ AHMED  
TEAM INFERNO - Faculty in charge





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## Media Coverage

- [https://bangaloremirror.indiatimes.com/bangalore/others/teams-from-4-engg-colleges-in-bengaluru-showcase-prototypes-of-green-cars-in-eco-marathon/amp\\_articleshow/72428738.cms#referrer=https://www.google.com](https://bangaloremirror.indiatimes.com/bangalore/others/teams-from-4-engg-colleges-in-bengaluru-showcase-prototypes-of-green-cars-in-eco-marathon/amp_articleshow/72428738.cms#referrer=https://www.google.com)
- <https://automotiveleadnews.com/2019/10/13/bangalore-engineering-students-to-drive-shell-eco-marathon-2019-with-latest-mobility-solutions/>
- <https://vijaykarnataka.com/tech/news/shell-technology-center-eco-marathon-2019-make-the-future-live-india/articleshow/71716372.cms>
- <https://kannada.oneindia.com/news/business/shell-eco-marathon-make-the-future-live-engineering-students-compete-177989.html>

### INFERNO TEAM



Shiva Varun Singh Rajput, Iv Sem Me Developed Amphibious Uav & Exhibited On Indian Navy Day At New Delhi, 8th Dec'2019. Appreciated By Rakshamantri, Sri Rajnath Singh. Won Cash Prize-15 Lakhs

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Won Safety Award In Shell Eco Marathon, Malaysia 2022

*Khalique Ejaz Ahmed*  
KHALIQUE EJAZ AHMED  
TEAM INFERNO - Faculty in charge



Printed from

# Bangalore Mirror

## Teams from 4 engg colleges in Bengaluru showcase prototypes of green cars in eco marathon

By Kumaran P, Bangalore Mirror Bureau | Dec 9, 2019, 06.00 AM IST



Four teams from various engineering colleges took part in an eco-marathon that was held last month. They developed prototypes of cars that

# ಭಾವೀ ಎಂಜಿನಿಯರ್‌ಗಳ ಭವಿಷ್ಯದ ಕಾರುಗಳು!

ಬರಿದಾಗುವ ಇಂಧನ ಮೂಲಗಳಿಂದಾಗಿ ಆಯವೆಲ್ಲರೂ ಉದ್ದವಾದ ದಿವ್ಯ ದೀಪಿಯೊಂದಿಗೆ ಭವಿಷ್ಯದ ಬದಲಾಗುತ್ತದೆ. ಈ ಬದಲಾವಣೆಯ ಗಾಳಿಗೆ ಉದ್ದವು ಕೂಡ ಮತ್ತೆ ಮತ್ತೆ ತೆರೆದುಕೊಂಡಿದೆ. ಇದು ಇಂಧನದ ಕಂಗು ಇಲ್ಲದ ಎಲೆಕ್ಟ್ರಿಕ್ ವಾಹನಗಳ ಹೊಸ ಶಕ್ತಿ ಆರಂಭಕ್ಕೆ ಮುನ್ನುಡಿಯಾಯಿತು.



ಶ್ರೀಮತಿ ಅರವಿಂದಿಗೆ ಆರ್.ಪಿ. ಆರವಿಂದ 'ಶ್ರುತಿಶಾ' ಗುಂಡು ಎಂಜಿನಿಯರಿನಿಂದ.

ವಾಹನ ಕಾರುಗಳ ಬೆಳವಣಿಗೆಯು ಹೊಸ ಶಕ್ತಿಯನ್ನು ತಂದಿದೆ. ಆಯವೆಲ್ಲರೂ ಉದ್ದವಾದ ದಿವ್ಯ ದೀಪಿಯೊಂದಿಗೆ ಭವಿಷ್ಯದ ಬದಲಾಗುತ್ತದೆ. ಈ ಬದಲಾವಣೆಯ ಗಾಳಿಗೆ ಉದ್ದವು ಕೂಡ ಮತ್ತೆ ಮತ್ತೆ ತೆರೆದುಕೊಂಡಿದೆ. ಇದು ಇಂಧನದ ಕಂಗು ಇಲ್ಲದ ಎಲೆಕ್ಟ್ರಿಕ್ ವಾಹನಗಳ ಹೊಸ ಶಕ್ತಿ ಆರಂಭಕ್ಕೆ ಮುನ್ನುಡಿಯಾಯಿತು.

### ಬೆಂಗಳೂರು ವಿಶ್ವವಿದ್ಯಾಲಯದ ವಿದ್ಯಾರ್ಥಿಗಳು



ಶ್ರೀಮತಿ ಅರವಿಂದಿಗೆ ಆರ್.ಪಿ. ಆರವಿಂದ 'ಶ್ರುತಿಶಾ' ಗುಂಡು ಎಂಜಿನಿಯರಿನಿಂದ.

### ಭವಿಷ್ಯದ ವಾಹನಗಳ ಸಮನ್ವಯಣೆ ಪರಿಕಾರ

ಭವಿಷ್ಯದ ವಾಹನಗಳ ಸಮನ್ವಯಣೆ ಪರಿಕಾರ... ಇದು ಇಂಧನದ ಕಂಗು ಇಲ್ಲದ ಎಲೆಕ್ಟ್ರಿಕ್ ವಾಹನಗಳ ಹೊಸ ಶಕ್ತಿ ಆರಂಭಕ್ಕೆ ಮುನ್ನುಡಿಯಾಯಿತು.



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### ವಿದ್ಯಾರ್ಥಿಗಳ ಕಲ್ಪನೆಯ ವಾಹನಗಳ



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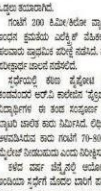
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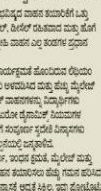
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### ವಿದ್ಯಾರ್ಥಿಗಳ ಕಲ್ಪನೆಯ ವಾಹನಗಳ



ಶ್ರೀಮತಿ ಅರವಿಂದಿಗೆ ಆರ್.ಪಿ. ಆರವಿಂದ 'ಶ್ರುತಿಶಾ' ಗುಂಡು ಎಂಜಿನಿಯರಿನಿಂದ.

### ಭವಿಷ್ಯದ ವಾಹನಗಳ ಸಮನ್ವಯಣೆ ಪರಿಕಾರ

ಭವಿಷ್ಯದ ವಾಹನಗಳ ಸಮನ್ವಯಣೆ ಪರಿಕಾರ... ಇದು ಇಂಧನದ ಕಂಗು ಇಲ್ಲದ ಎಲೆಕ್ಟ್ರಿಕ್ ವಾಹನಗಳ ಹೊಸ ಶಕ್ತಿ ಆರಂಭಕ್ಕೆ ಮುನ್ನುಡಿಯಾಯಿತು.



ಆರ್.ಪಿ. ಆರವಿಂದ 'ಶ್ರುತಿಶಾ' ಗುಂಡು ಎಂಜಿನಿಯರಿನಿಂದ.

Shell Eco Marathon Asia 2020-Cash Prize- USD 3000

*Khalique Ejaz Ahmed*  
KHALIQUE EJAZ AHMED  
TEAM INFERNO - Faculty in charge



## INDIAN TEAMS WIN BIG IN FIRST EVER VIRTUAL SHELL ECO-MARATHON ASIA OFF-TRACK AWARDS



Jun 05, 2020

The first virtual Shell Eco-marathon Asia Off-Track Awards has just concluded with student teams from India reaping awards in four out of six categories.

The winners are Team #17 Eco Titans from VIT University for the Communications Award, Team #316 Pravega from the Government Engineering College, Barton Hill University for the Circular Economy Award, Team #315 DTU E-Supermileage from the Delhi Technological University for the Vehicle Design Award, Prototype category and Team #320 Inferno from the Sir M Visvesvaraya Institute of Technology University for the Safety Award.

"Team Inferno is extremely happy to register the team's first Off-Track award win at Shell Eco-Marathon Asia and would like to take this as motivation to strive harder for future wins at Shell Eco-marathon competitions," said Sree Tejas S, Team Manager of Team #320 Inferno from the Sir M Visvesvaraya Institute of Technology, Bengaluru. Their entry won the Safety Award for promoting a daily commitment to safety as a culture and not just as a set of rules to follow. He adds: "We are happy to be a part of this historical event of Shell Eco-marathon and immensely proud to represent and win an award for India at a prestigious international competition."

Category	Winner	Technical details
Technical Innovation Award, presented by Southwest Research Institute	TP Eco-Pilot, Terence Padirine, High School - Singapore	
Circular Economy Award	Eco Titans, VIT University - India	Source: Lotus LOGO, Universal Design Effect - Indonesia
Vehicle Design Award (Prototype), presented by Abar	Pravega, Government Engineering College, Barton Hill - India	Prototype based on: Street Car - Indonesia
Vehicle Design Award (Urban Concept), presented by Abar	DTU E-Supermileage, Delhi Technological University - India	Source: India Institute of Technology, Bhubaneswar - India
Safety Award	Team #320 Inferno, Sir M Visvesvaraya Institute of Technology - India	

Source: AUTOCAR Professional.

Four Indian teams the big winners in virtual Shell Eco-Marathon Asia contest



The team INFERNO won 3000 US-dollars in SHELL ECC MARATHON (SEM) - 2020 at Kuala Lumpur, Malaysia.

### Indian institutes win awards for eco-friendly prototype, fuel-efficient vehicle

TNN | Posted on Thursday, June 11, 2020

The first virtual Shell Eco-marathon Asia Off-Track Awards were won by students of four institutes in the country



Student from various institutes in India bagged prizes at the first virtual Shell Eco-marathon Asia Off-Track Awards.

The awards were won by students from VIT University, Government Engineering College, Barton Hill, Delhi Technological University and Sir M Visvesvaraya Institute of Technology.

Winning prize money of \$3000, the candidates had obtained awards in four out of six categories.

VIT University's Team Eco Titans won the Communications Award for their integrated communications efforts including elements such as cross-nation seminars, exhibitions, rallies, radio segments and social media outreach.

Team Pravega from the Government Engineering College bagged the Circular Economy Award for creating an eco-friendly prototype made from 100% bamboo fabric combined with glass fibre and powered by electrical energy.

Delhi Technological University's Team DTU E-Supermileage won the Vehicle Design Award in the prototype category for their aerodynamic and fuel-efficient vehicle design which includes a carbon fibre (G1CM) body structure.

Sir M Visvesvaraya Institute of Technology's from Team Inferno won the Safety Award for their approach to safety including standardised protocols for drivers, vehicle transportation, battery management, risk assessments and several other on-site best practices.

The on-track event was cancelled due to the COVID-19 pandemic. The candidates were evaluated online for the off-track awards in various categories.

Around 50 teams from 16 different countries participated in the off-track awards for the Asia region.

*Khalique Ejaz Ahmed*  
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 TEAM INFERNO - Faculty in charge



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*Khalique*  
KHALIQUE EJAZ AHMED  
TEAM INFERNO - Faculty in charge



An urban concept from RV Engineering College.

isn't the first time they'll be at Shell Eco-marathon, but the fourth. These students have built the car that delivers a whopping 240kpl! Now they're looking at another that will push the limits of fuel economy. They've chosen to participate in the gasoline prototype category because they believe that there is a dire need to improve efficiency of technologies that are in use today.

To power their car, they are using a Honda GXH50 air-cooled, 4-stroke OHV engine which displaces almost 50cc. In order to save weight and without compromising on stiffness and strength, the team used aluminium 6061 to make the chassis. Stopping power comes from a hydraulic braking system. For safety, there's a dead man switch with pressure sensors on the steering wheel and a time delay, engine kill switches, ultrasonic proximity sensors, seatbelts and fire

extinguishers too.

Team Eco-Titans was formed in 2009, and comprises a group of under-graduate students from VIT University, Vellore. They too are competing in the Shell Eco-marathon for the fourth time and are also the first team from India to use a carbon fibre chassis in 2012. This year, after many ups and downs including a crash during testing and going through a rebuild, they hope to achieve a competitive mileage figure.

Their marathoner is powered by a Honda GX35, a small 4-stroke engine which has a displacement of 35cc. Transmission is taken care of by an 8-speed Shimano internal gear hub, aluminium gears and a nylon gearbox. Stopping is handled by Tekro hydraulic rear brakes and front disc brakes. To keep weight really low, the chassis is made from carbon fibre and polyurethane foam composites and carbon fibre epoxy

### INDIAN TEAMS AT SHELL ECO-MARATHON

Here's a complete list of Indian teams and universities participating in the Shell Eco-marathon 2015 in Manila:

- Sir M Visvesvaraya Institute of Technology, Bengaluru
- Delhi Technological University, New Delhi
- KIIT UNIVERSITY, Bhubaneswar
- Birla Institute of Technology and Science (BITS), Pilani
- VIT University, Vellore
- RV College of Engineering, Bengaluru
- K.J. Somaiya College Of Engineering, Mumbai
- M.N.M Jain Engineering College, Chennai
- SRM University, Chennai
- Pandit Deendayal Petroleum University, Gandhinagar
- Government Engineering College Barton Hill, Thiruvananthapuram
- YadavraoTasgaonkar Institute of Engineering & Technology (YTIET), Bhivpuri, Karjat
- Indian Institute of Technology - Banaras Hindu University, Varanasi
- Madras Institute of Technology, Chennai

composite tubes. The aerodynamic teardrop-shaped body is also made from carbon fibre epoxy composites. Safety is provided by a 5-point safety harness, fire extinguishers, pressure-operated dead man switch and a firewall between the engine and cockpit. Event safety guidelines require that the driver can exit the vehicle in less than 10 seconds. Their driver can do it in seven.

Though both the teams mentioned here use petrol as fuel, there are

several others commonly seen at the event. Diesel, hybrids, solar, electric, bio-fuel, bio-ethanol are some of the other popular energy sources students use to power their ultra-efficient machines. Someday, we hope we can use that term to describe the vehicles we drive every day. We wish the Indian teams all the best in the Shell Eco-marathon challenge. You can visit the Autocar India website for more coverage on this event.



An urban concept from MNM Jain Engineering College, Chennai.



Team Inferno testing their ultra-efficient prototype.

*Khalique*  
 KHALIQUE EJAZ AHMED  
 TEAM INFERNO - Faculty in charge



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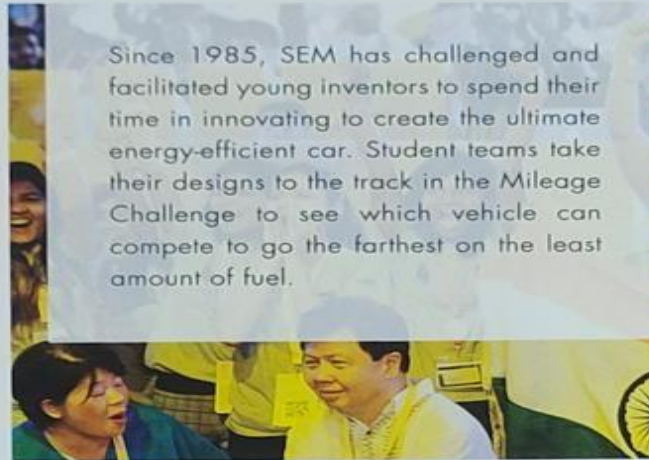
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## History of SEM

It all started with a group of Shell scientists based in a research laboratory in Illinois, USA, who had a friendly bet to see who could drive his own car furthest on one gallon of fuel. The winner managed a fuel economy of 49.73 miles to the gallon. Over the years challenges toughened and results improved. The Shell Eco-marathon (SEM), as it was called in the later years, is now recognised as the world's longest-running mileage competition for students.



Since 1985, SEM has challenged and facilitated young inventors to spend their time in innovating to create the ultimate energy-efficient car. Student teams take their designs to the track in the Mileage Challenge to see which vehicle can compete to go the farthest on the least amount of fuel.



To know more about the event and register visit [www.shell.in/makethefuture](http://www.shell.in/makethefuture)

Follow us @shell\_india @makethefuture @shell\_ecomar to know how we are redefining the energy space

*Khalique Ejaz Ahmed*  
KHALIQUE EJAZ AHMED  
TEAM INFERNO - Faculty in Charge





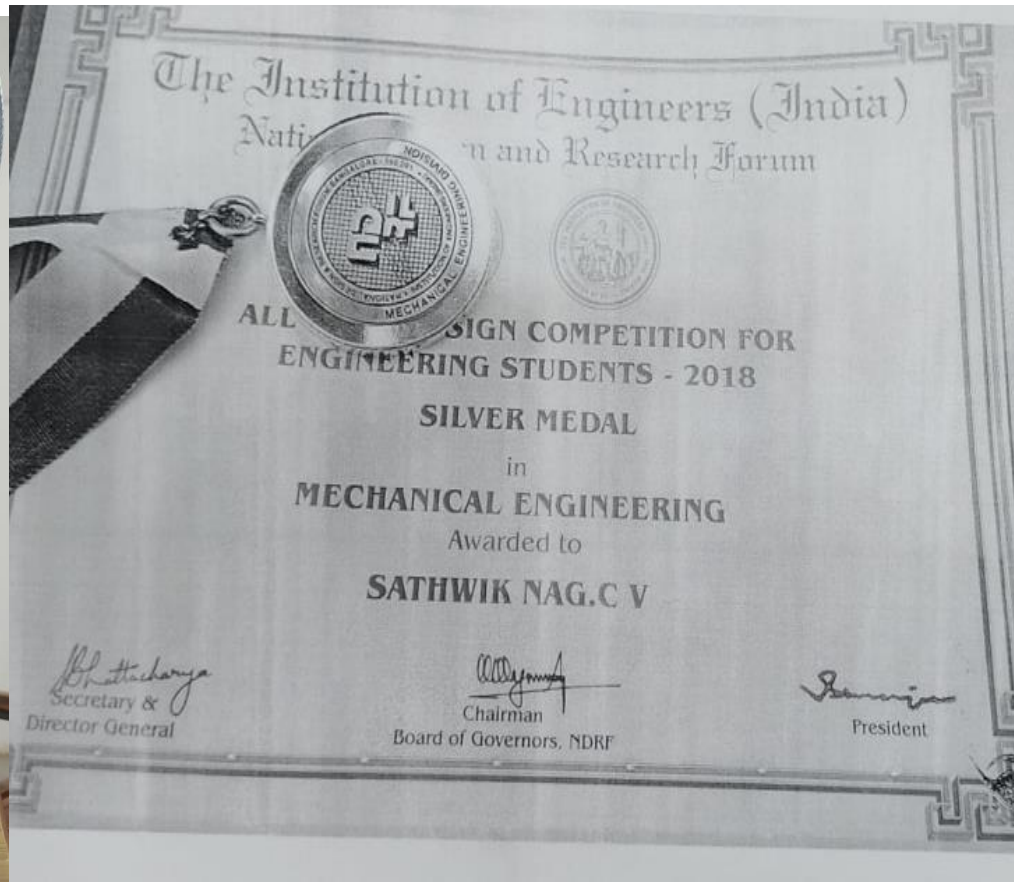
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Shell  
**Eco-marathon**  
ASIA 2015

## CERTIFICATE OF TECHNICAL INSPECTION

PRESENTED TO

**Khalique Ejaz Ahmed**  
**Inferno**  
**Sir M Visvesvaraya Institute of Technology**

In recognition of your exceptional work in vehicle **design, fabrication,**  
**testing** and successful completion of the **TECHNICAL INSPECTION**

Norman Koch  
Global Technical Director,  
Shell Eco-marathon

March 1, 2015

## DRIVING INNOVATION



Shell Eco-marathon Asia challenges student teams from around the region to design, build and test ultra energy-efficient vehicles.

KHALIQUE EJAZ AHMED  
TEAM INFERNO - Faculty in charge



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Shell  
**Eco-marathon**  
ASIA 2016

## CERTIFICATE OF RECOGNITION

PRESENTED TO

**Inferno**

**Sir M Visvesvaraya Institute of Technology**

In recognition of your exceptional work in vehicle design, fabrication, testing and achievement of the energy efficiency of **100.4 km/l** in the **Prototype Gasoline** category.

Norman Koch  
Global Technical Director,  
Shell Eco-marathon

6 March, 2016

## DRIVING INNOVATION



Shell Eco-marathon Asia challenges student teams from around the region to design, build, test and drive ultra-energy-efficient vehicles.

KHALIQUE EJAZ AHMED  
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# SAFETY AWARD WINNERS - 2020



Team Inferno was all set to take part in this year's Shell Eco Marathon touted to take place in Kuala Lumpur, Malaysia. Due to the corona virus pandemic, the competition got cancelled. In order to ensure that our efforts did not end up in vain, Shell made sure Virtual Off track awards available to all eligible teams.

Team Inferno took part in the Safety, Communications & Circular Economy categories respectively.

***On the 3rd of June 2020, Team Inferno was adjudged winners of the Safety Category.***

  
KHALIQUE EJAZ AHMED  
TEAM INFERNO - Faculty in Charge



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## THE TEAM



Name	USN	Semester	Branch
Sree Tejas S	1MV16ME099	VIII - B	Mechanical
Paras Kathuria	1MV16ME057	VIII - A	Mechanical
Suhas Gowda P.	1MV16IM014	VIII	Industrial Engineering & Management
Lakshya Dave	1MV16ME044	VIII - A	Mechanical
Dhathresh M	1MV17ME021	VI - A	Mechanical
Kshitij Agrawal	1MV17ME035	VI - A	Mechanical
Abhishek Gupta	1MV17ME004	VI - A	Mechanical
Harshit Raj	1MV17EE029	VI - A	Electrical & Electronics Engineering
Kavya G S	1MV18ME043	IV - A	Mechanical
Parikshit Br	1mv18me058	IV - B	Mechanical
Abhay S	1MV18ME001	IV - A	Mechanical
Vishwas A	1MV18IM014	IV	Industrial Engineering & Management
Abhijith V. Narayan	1MV18EE002	IV - A	Electrical & Electronics Engineering
Shridhar Bhat	1MV18ME083	IV - B	Mechanical
Nischith K	1MV18EE062	IV - B	Electrical & Electronics Engineering
Vaishnavi Bhardwaj	1MV18ME091	IV - B	Mechanical
CS Pradeep	1MV18ME024	IV - A	Mechanical
Aman Makhnotra	1MV18ME013	IV - A	Mechanical
Suyesha Bhattacharjee	1MV19EE099	II - I	Electrical & Electronics Engineering
Soumick Majumdar	1MV19EE092	II - I	Electrical & Electronics Engineering
Hanu Yadav	1MV19ME019	II - G	Mechanical
Siddharth S H	1MV19ME059	II - G	Mechanical
Kumar Harshit	1MV19EE044	II - H	Electrical & Electronics Engineering
Arjun A	1MV19CS022	II - D	Computer Science

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